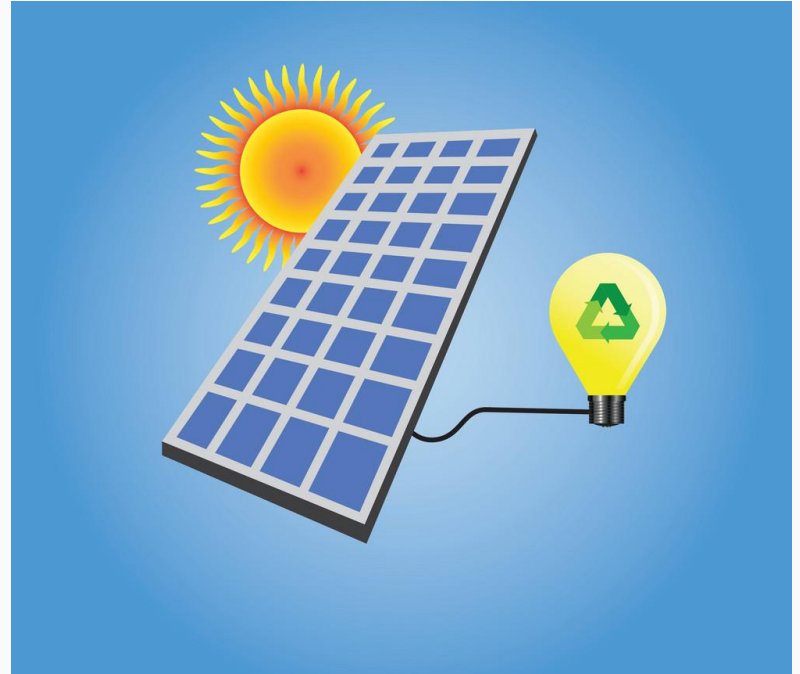


Solar Energy Overview

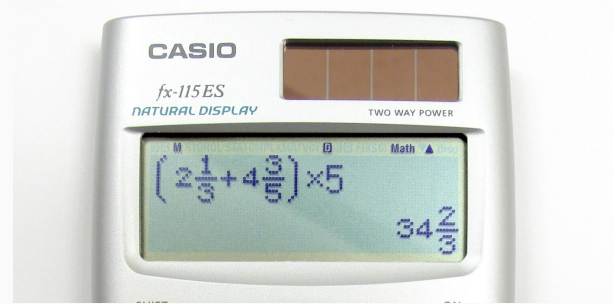
What is a Solar (PV) System?

- Photovoltaic systems are systems that produce electricity directly from sunlight.
- These systems produce clean and reliable energy, as long as the sun shines!



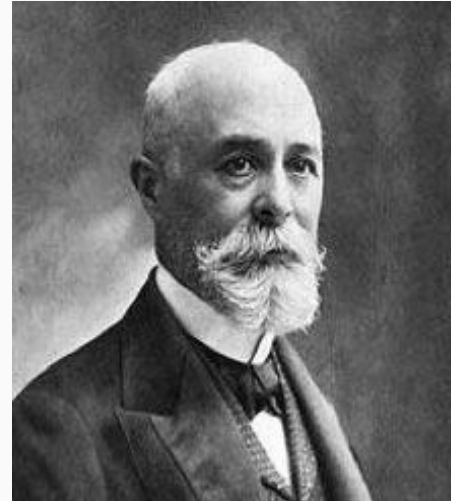
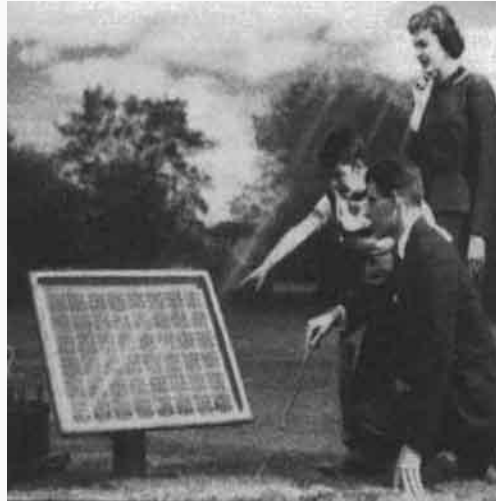
Uses of Solar Energy

Solar cells can be used in small applications such as calculators, as well as in large photovoltaic units at utility scale.



A Brief History of Solar Energy

- Willoughby Smith, in 1873, discovers that selenium is sensitive to sunlight.
- In 1880, Charles Fritts creates the first solar cell.
- In 1905, Albert Einstein offers an explanation of the physical relationship between solar energy and electricity.



A Brief History of Solar Energy

- In the 1950s, Bell scientists discovered that silicon is a photosensitive element and create a 6% photovoltaic cell.
- NASA begins using photovoltaic solar systems in the 1960s to power the devices on satellites and spacecraft.



Advantages of Solar Battery Technology

- Reliability - Avoid power failures in situations where continuous operation is critical.
- Longevity - Most solar systems are guaranteed for 25 years by their manufacturers.
- Durability - Properly designed and installed solar systems only need periodic inspections and updates.
- Resilience - Energy security, independence and pollution reduction.

Advantages of Solar Technology

Decentralization of the power grid

→ The generation and storage of power near the place of consumption reduces demand on the central grid.

Advantages of Solar Technology

There is no cost for fuel...

The sun is FREE!

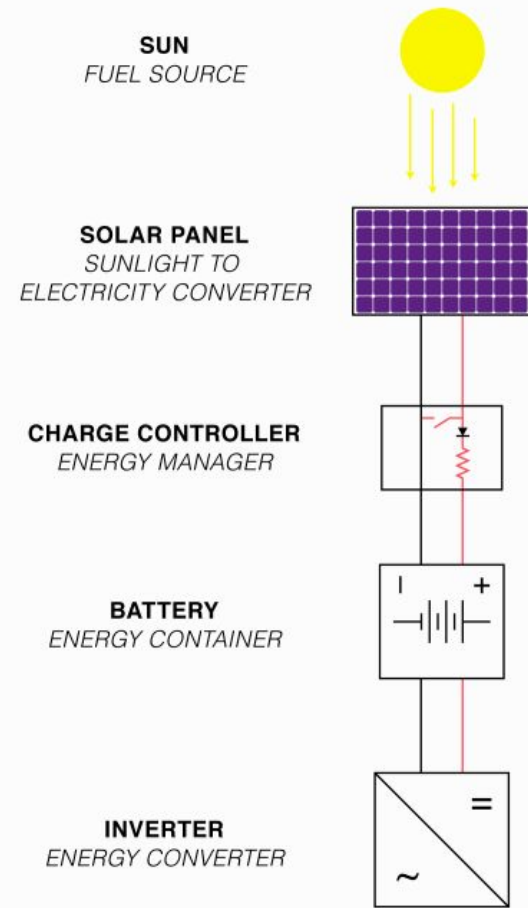


Disadvantages of Solar Technology

- Initial cost is high
- Variability of available sunlight
- Energy storage
- Increased load efficiency
- The installation of a solar system sometimes requires that old and inefficient household appliances be replaced with new and efficient ones.



Components of a solar battery system



Basic Components for Off Grid Solar

Site Location

- Ground
- Roof
- Mobile



Different systems meet different needs

- Daytime (small or no battery) vs 24/7 (larger battery)
- AC-Out (regular plug-in outlets) vs DC-Out (water pumps, lighting etc.)
- Grid-connected (small or no battery) vs grid-optional (larger battery)
- Single source vs hybrid systems (wind, solar, battery, generator and/or grid)